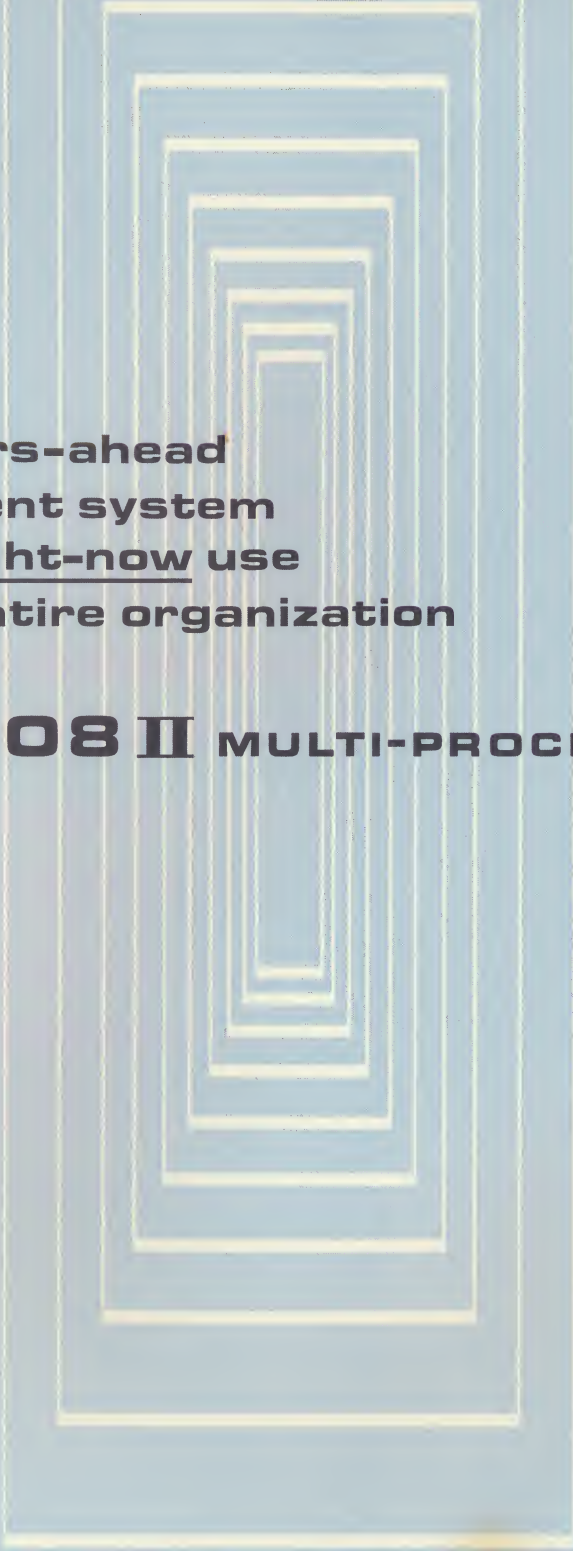


UNIVAC® 1108 II MULTI-PROCESS





**The years-ahead
management system
for right-now use
by your entire organization**

UNIVAC 1108 II MULTI-PROCESSOR SYSTEM

WITH THE UNIVAC 1108 II MULTI-PROCESSOR SYSTEM, Univac deals a heavy blow to the unrealistic obsolescence rate that customarily plagues the large-scale user; delivers *the* large-scale system with a future. Unlike other large-scale systems, the UNIVAC 1108 II Multi-Processor System is completely upwardly modular. It's the beginning of the line ...not the end of it. Capable of including as many as five processors, the UNIVAC 1108 II can accommodate an ever increasing volume of business and scientific applications ranging from routine but voluminous batch processing to the most demanding network operation requiring centralized control of time-shared and real-time processing. The UNIVAC 1108 II system that you order now to handle your current volume can still be handling your data processing years from now when that volume has grown even larger, because, with the 1108 II Multi-Processor Sys-

tem...What You Buy Now...STAYS Later. The UNIVAC 1108 II is the ultimate achievement in:

- COMPUTER DESIGN
- PROGRAMMING TECHNOLOGY
- SYSTEM ORGANIZATION



ACHIEVEMENT IN COMPUTER DESIGN A SINGLE SYSTEM FOR ALL YOUR NEEDS

Increasing volume and variety of applications pose no problem to the UNIVAC 1108 II. Why order a special computer (at very special prices) to handle your work? No matter what your business is, nor how you handle it, the UNIVAC 1108 II Multi-Processor System will more than likely deliver everything you need in a single system. The UNIVAC 1108 II is truly a unique achievement in computer design. It transcends the accustomed concept of "general purpose" as that term has been applied to other computers, achieves true general utility across the entire range of electronic data processing without regard to the barriers that exist between business, government, and science. And, most flexibly engineered, the UNIVAC 1108 II provides unequalled capability in every mode of processing: batch, demand (time-sharing), and real-time.

BATCH PROCESSING: Foremost among UNIVAC 1108 II design features is its batch processing capacity and versatility. Large and expandable main storage, PLUS nanosecond speeds permit massive quantities of data to be handled quickly and accurately. Much emphasis has been placed on simplifying the preparation of the machine run so that operator intervention and decision are minimized. Job turnaround time is drastically reduced. The UNIVAC 1108 II simply does more work in less time for less money. A wide assortment of peripheral input and output equipment including display units, and mass storage units, guarantees rapid access to, and instantaneous retrieval of large volumes

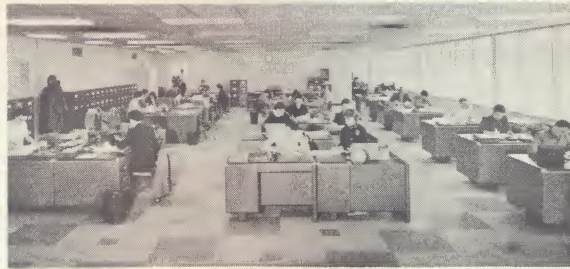


of information; high speed printout as well as visual displays of reports and results when—and how—you want them. Whatever your operation—large scale commercial applications; critical scientific calculations, complex industrial applications; strategic government work—if you do it in batches, the UNIVAC 1108 II Multi-Processor System will do more of it, more often, at less cost than any comparable computer system.

DEMAND PROCESSING (TIME SHARING): Efficient demand processing, or time sharing, requires simultaneous accommodations of requests and demands from users at remote in-

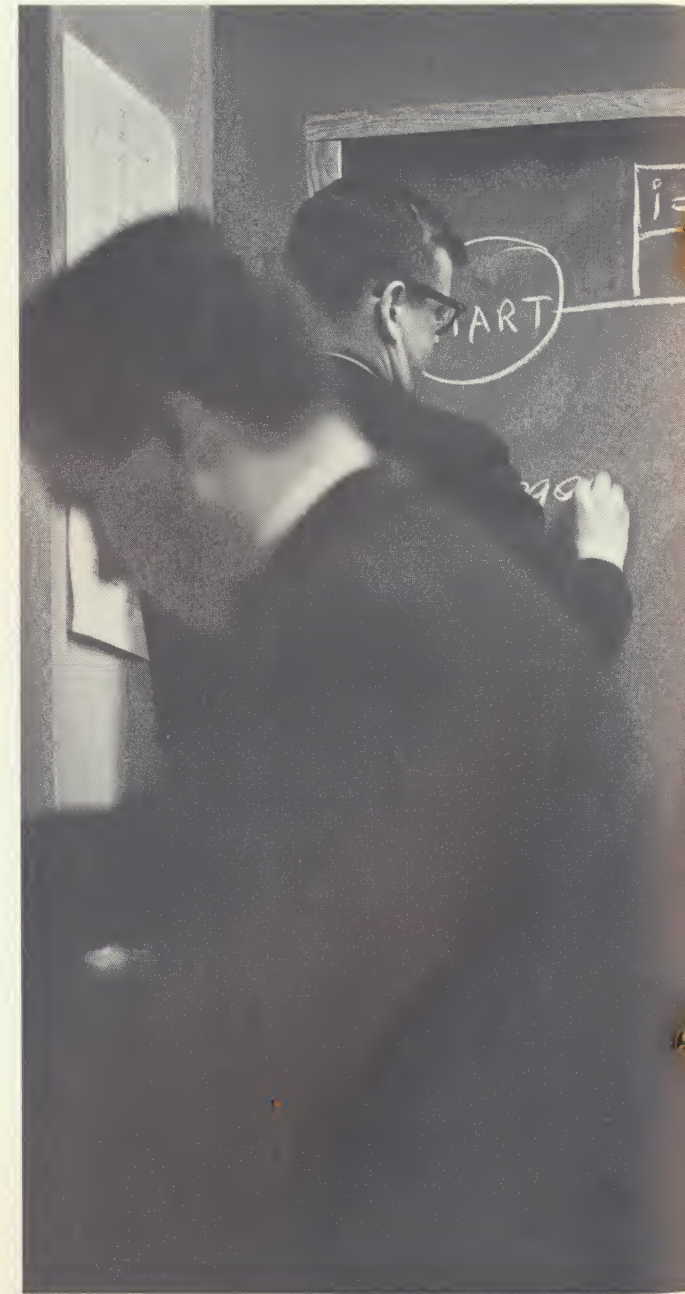
quiry terminals operating in a demand or “conversational” mode with the central computer providing each participant with a guaranteed response time. The fluency with which a data processing system operates in the demand mode will determine to a great degree—today, and increasingly in the years to come—the value of that system to you and to your business.

The UNIVAC 1108 II Multi-Processor System is equipped in standard configuration, for completely efficient multi-programming techniques to guarantee virtually simultaneous input, processing and output of run submissions from a variety of sources both remote and central. Time-slicing—a necessity in a demanding envi-



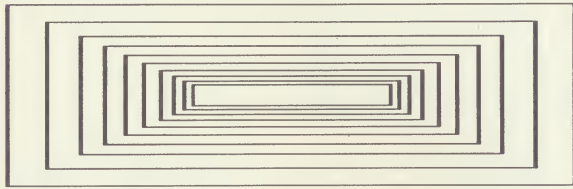
ronment—is automatic and precise with the UNIVAC 1108 II, with constant checking and assignment of priorities on a “ready” basis, checking those priorities regularly to insure that even low-priority demand routines are given their share of the Central Processor; that high-priority requests are handled efficiently and on time. If time sharing is your need—now, or later—the UNIVAC 1108 II Multi-Processor System is made to order for you. The 1108 II is *the* large-scale system with a future.

REAL-TIME: Real-time is a mode of operation in which data, necessary to the control and/or execution of a transaction, can be proc-



essed in time for the transaction itself to be affected by the results of the processing. The UNIVAC 1108 II Multi-Processor System, through the Executive Program, is fully equipped to handle the most intricate real-time operations. Uniquely efficient scheduling and interrupt procedures provide an environment completely compatible—indeed, most satisfactory—for any real-time situation.

Real-time, no less than time sharing, is a mode of operation which is assuming increasing importance as the necessity increases for management to have at its fingertips up-to-the-minute information to control operations that become more and more far-flung. Today, that computer

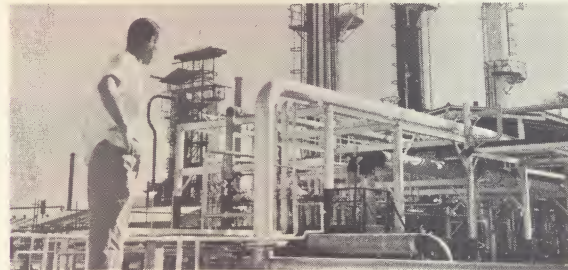


which can operate flexibly and smoothly in real-time is the one that will carry you through tomorrow. The UNIVAC 1108 II Multi-Processor System is *the* system with a future.

Thus is the UNIVAC 1108 II Multi-Processor System designed: with complete systems adaptability in mind; with across-the-board flexibility in mind; with total compatibility and modularity in mind; and with your future and the future of your business in mind.

With the UNIVAC 1108 II, What You Buy Now . . . STAYS later, because the 1108 II is *the* large-scale system with a future.

THE SOFTWARE: ACHIEVEMENT IN PROGRAMMING TECHNOLOGY. The software provided with the UNIVAC 1108 II is designed to meet the total computing requirements of today's most advanced large-scale users and to allow the change and growth needed to meet tomorrow's challenge. No less in software than in every other respect, the UNIVAC 1108 II is *the* large-scale system with a future. Univac has combined many years of experience in multi-programming and communication-oriented systems to provide a software library which is at once easy to use and which insures program integrity in a demand-response environment. UNIVAC 1108 II software library is comprehen-



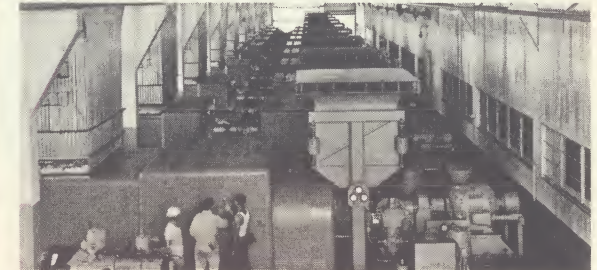
sive; covers the complete range of systems support from high level language compilers, through real-time data reduction routines, to concise, basic mathematical functions.

OF PRIME IMPORTANCE IN THE SOFTWARE LIBRARY ARE:

THE EXECUTIVE SYSTEM: A multi-processor system such as the UNIVAC 1108 II requires an extremely complex internal operating environment in order that the demands of all applications be fulfilled. The responsibility for establishing and maintaining this environment is borne by the Executive System. The UNIVAC 1108 II Executive System, controls and coordi-

nates every function that takes place within the operating environment. It allows for the concurrent operation of many programs: it insures that the system reacts appropriately to the inquiries, requests and demands of many different users at local and remote stations; it absorbs and executes the stringent demands of real-time applications; it allows the storing, filing, retrieving and protection of large blocks of data; it makes maximum use of available hardware facilities while at once minimizing job turnaround time. The UNIVAC 1108 II Executive System is, far and away, the most advanced in the industry.

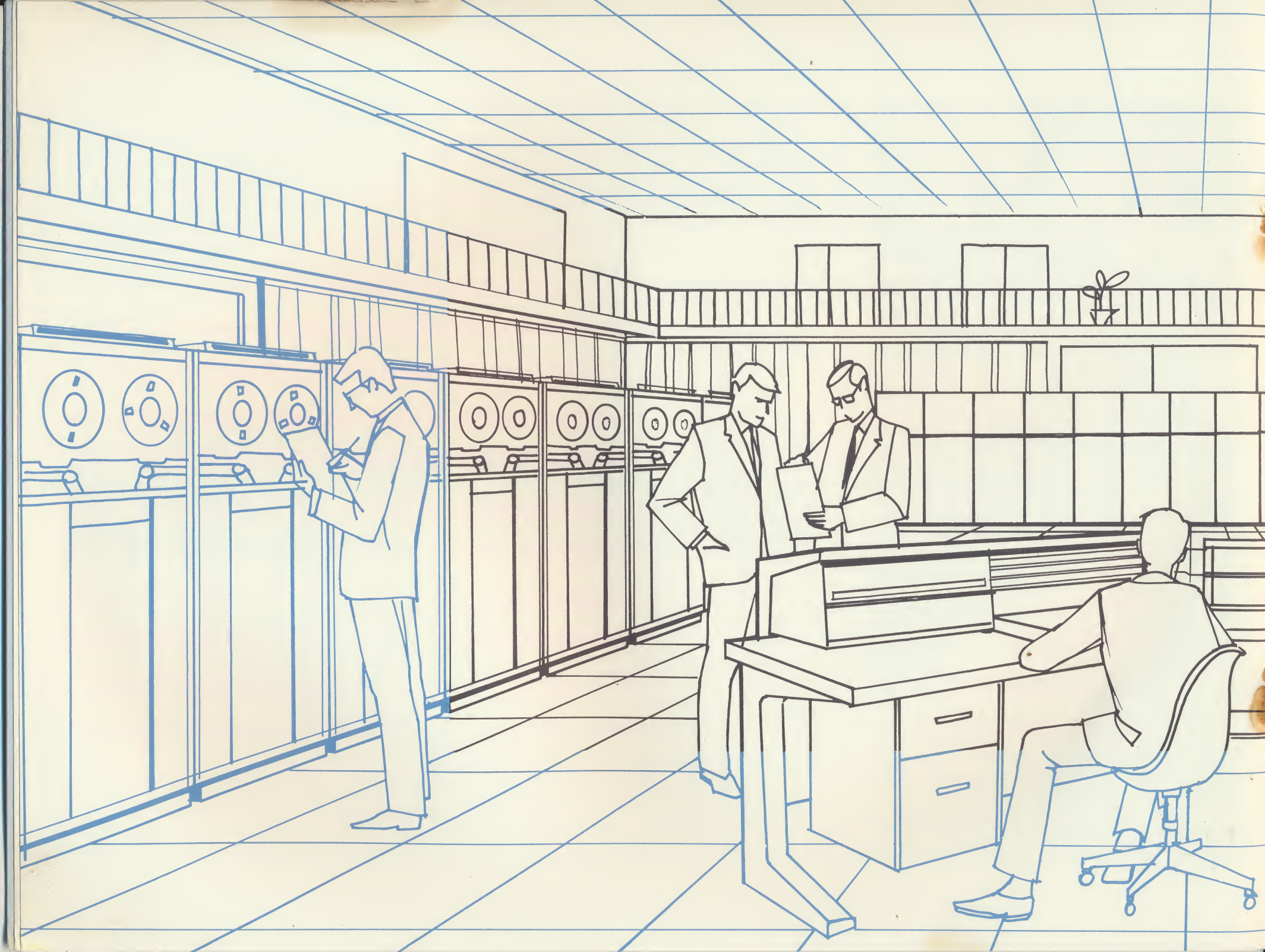
THE ASSEMBLER: Provides for rapid automatic translation from symbolic coding to ma-

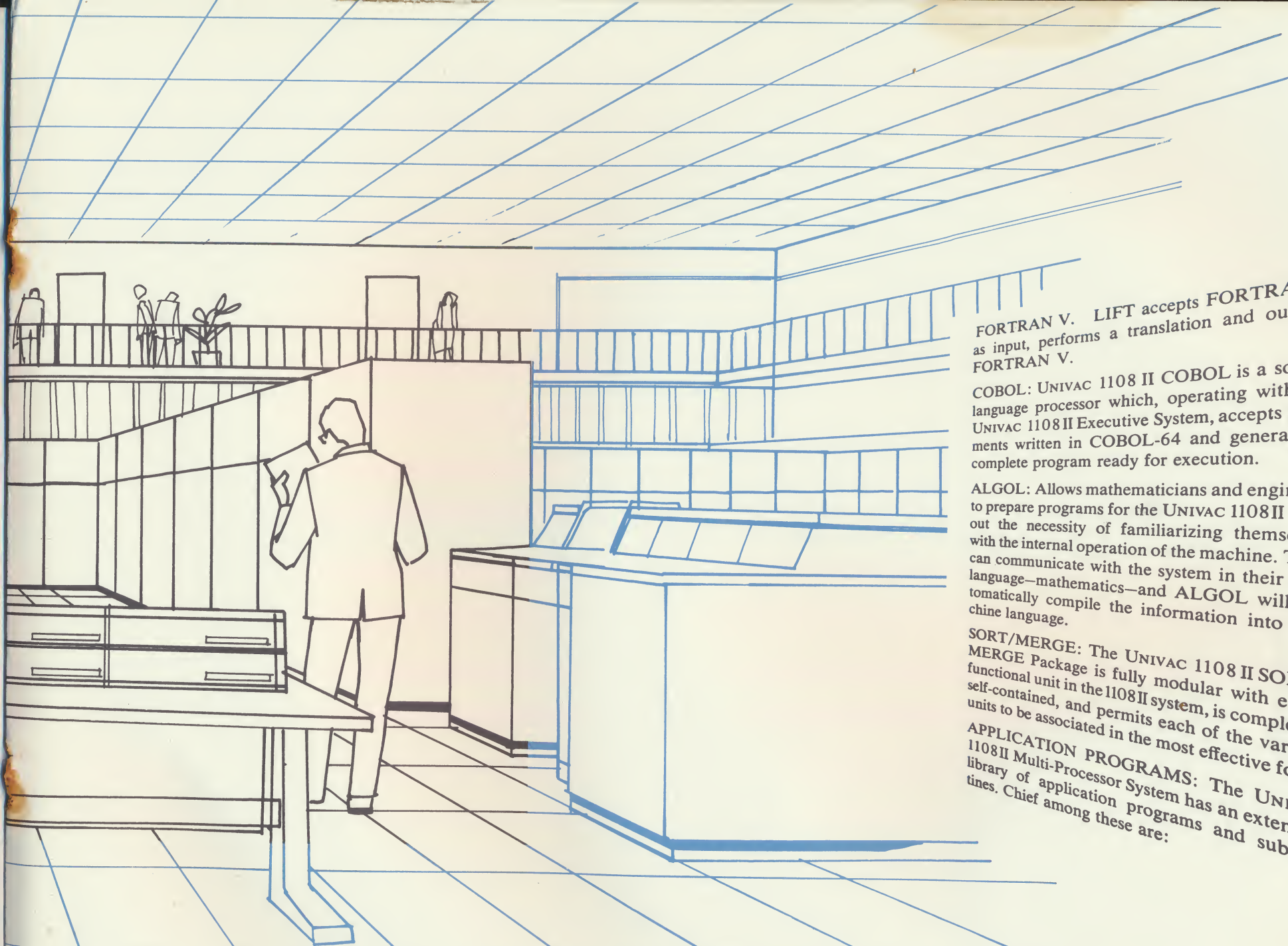


chine language usable by the 1108 II.

FORTTRAN V: An algebraic language designed primarily for scientific and engineering computations, allows more flexible data handling and minimizes user programming efforts. UNIVAC 1108 II FORTTRAN V is not only a major advance over FORTTRAN IV but is also compatible with existing programs written in UNIVAC 1107 or IBM FORTTRAN IV.

LIFT (Logically Integrated Fortran Translator): FORTTRAN II to FORTTRAN V. LIFT is a source language translator which bridges the incompatibility between FORTTRAN II and





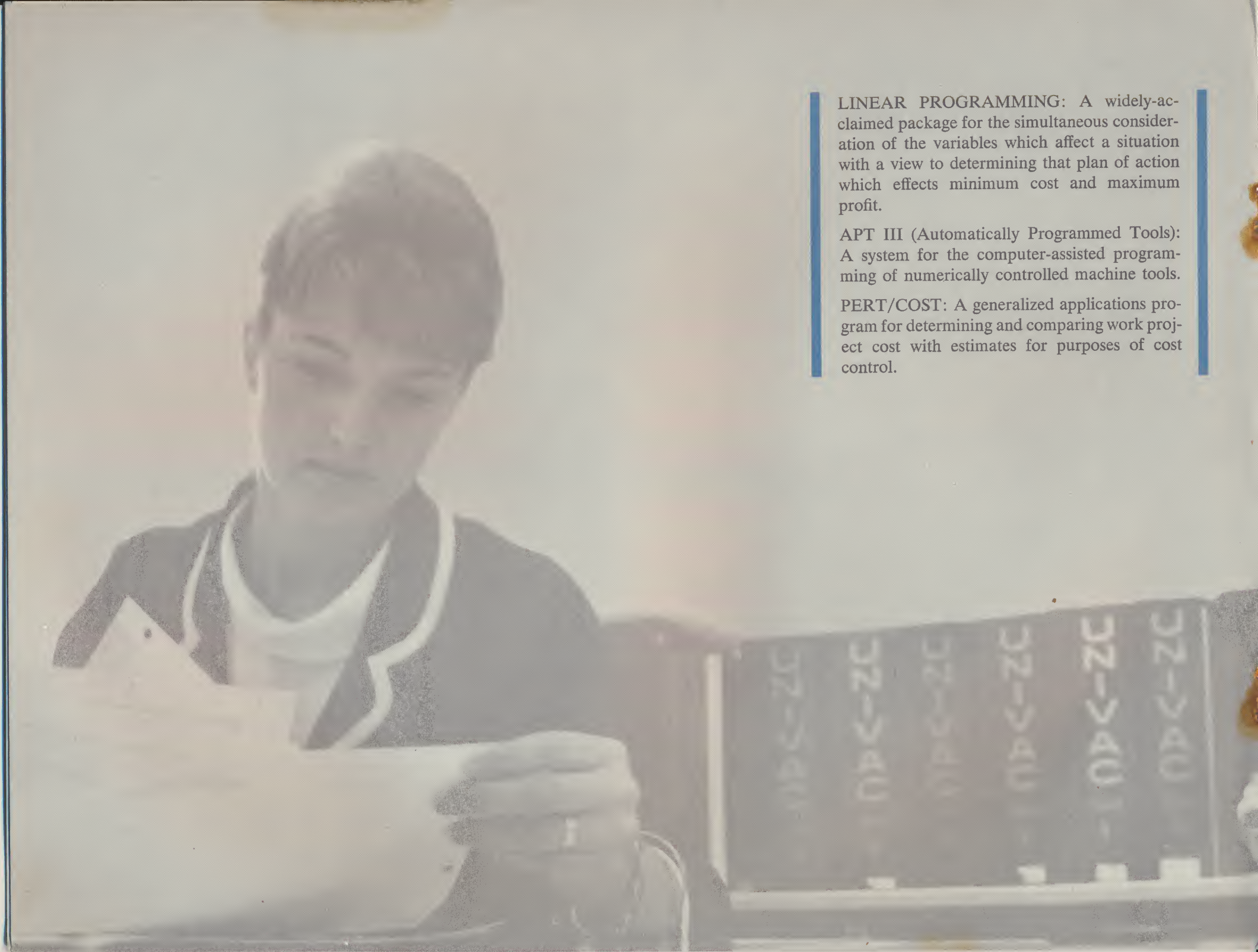
FORTTRAN V. LIFT accepts **FORTTRAN II** as input, performs a translation and outputs **FORTTRAN V.**

COBOL: **UNIVAC 1108 II COBOL** is a source language processor which, operating with the **UNIVAC 1108 II Executive System**, accepts statements written in **COBOL-64** and generates a complete program ready for execution.

ALGOL: Allows mathematicians and engineers to prepare programs for the **UNIVAC 1108 II** without the necessity of familiarizing themselves with the internal operation of the machine. They can communicate with the system in their own language—mathematics—and **ALGOL** will automatically compile the information into machine language.

SORT/MERGE: The **UNIVAC 1108 II SORT/MERGE Package** is fully modular with every functional unit in the **1108 II** system, is completely self-contained, and permits each of the various units to be associated in the most effective form.

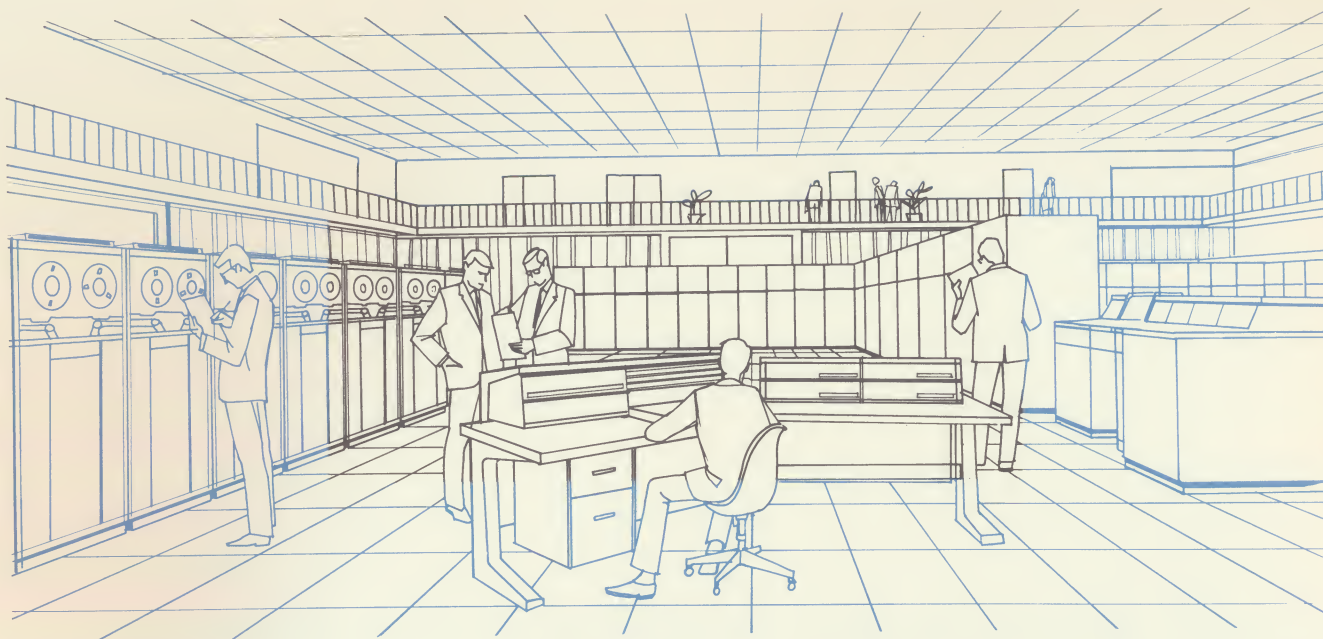
APPLICATION PROGRAMS: The **UNIVAC 1108 II Multi-Processor System** has an extensive library of application programs and subroutines. Chief among these are:



LINEAR PROGRAMMING: A widely-acclaimed package for the simultaneous consideration of the variables which affect a situation with a view to determining that plan of action which effects minimum cost and maximum profit.

APT III (Automatically Programmed Tools): A system for the computer-assisted programming of numerically controlled machine tools.

PERT/COST: A generalized applications program for determining and comparing work project cost with estimates for purposes of cost control.



THE HARDWARE: ACHIEVEMENT IN SYSTEM ORGANIZATION. The UNIVAC 1108 II Multi-Processor System is as efficiently organized as it is uniquely designed. A multi-processor system requires immeasurably more ingenuity and modularity than does a unit-processor system since it must allow many processors simultaneously to handle many different tasks under the direction of a common Executive System.

The UNIVAC 1108 II Multi-Processor System is organized so that:

- Each component has more than one access path to the Central Processor
- Individual component failure never prohibits continued system operation

- Possible access conflicts are automatically resolved by advanced priority logic.

- Individual components are logically removable for servicing without disabling the entire system.

In short, the UNIVAC 1108 II Multi-Processor System is so organized that down-time is virtually non-existent.

UNIVAC 1108 II hardware falls in six categories:

- Central Processors
- Input/Output Controllers
- Main Storage Modules
- Auxiliary Storage Subsystems
- System Interconnection Components
- Peripheral Subsystems



THE CENTRAL PROCESSOR: The Central Processor in the UNIVAC 1108 II System is an extremely fast, stored-program computer. It can access up to 262,144 words of memory, available in increments of 65,536 words. Meeting the true-test of a multi-processor system, each Central Processor is fully equipped with all functions for the execution of instructions including arithmetic, input/output and executive control. Each has its own set of integrated circuit control registers featuring a 125 nanosecond cycle time. The Central Processors are capable of handling vast quantities of converging data—in batch, real-time and demand modes—concurrently. Control of extremely high random access storage subsystems, complex communications systems, plus a wide variety of input-output peripheral equipment and remote inquiry systems resides in the Central Processor. Memory cycle time is 750 nanoseconds, but since more than one bank of memory can be accessed simultaneously, cycle time is reduced effectively to 375 nanoseconds.

INPUT/OUTPUT CONTROLLER: The UNIVAC 1108 II Input/Output Controller is an independent wired-logic processor. It provides:

- Up to 16 high-speed data channels
- Independent access to main storage
- Data chaining
- Contingency checking
- 16 Associative Registers
- 64 External Function Buffer Control Words and Normal Input/Output Buffer Control Words
- 192 Communications Buffer Control Words

MAIN STORAGE MODULES: Main Storage in the UNIVAC 1108 II Multi-Processor System is available in modules of 65,536 words up to a maximum of 262,144 words. As pointed out above, although read/restore cycle time is 750 nanoseconds, overlapping provides for an effective cycle time of 375 nanoseconds. In addition, up to eight-way interleaving of storage modules is provided to further reduce the probability of access conflicts.

AUXILIARY STORAGE SUBSYSTEMS: Auxiliary storage in the UNIVAC 1108 II System is primarily on magnetic drums. By utilizing these drums with their rapid-access mass storage and high transfer rate, the UNIVAC 1108 II offers unsurpassed overall system operation.

Up to nine FH 432 magnetic drums may be attached to a single Control Unit Synchronizer.

SYSTEM INTERCONNECTION COMPONENTS: A multi-processor system requires both established and reactive priorities between components of the system that are shared between two or more processors. In the 1108 II, this is accomplished by two units:

- The Multiple Module Access Unit allows the sharing of individual storage modules by up to five processors on a fixed priority basis.
- The Multiple Processor Adapter enables up to 4 Processors or input/output Controller channels to access the units in a shared peripheral subsystem.

A wide selection of Peripheral Units

A complete selection of peripherals is available to enable you to set up the precise main site configuration needed plus the appropriate remote equipment.

Auxiliary storage subsystems, for example, feature fast random access, and mass storage capacities of up to a billion alphanumeric characters per computer channel. Advanced card-handling units, paper tape subsystems, high-speed magnetic tape drives and printers producing up to 121,000 alphanumeric characters a minute speed your batch processing programs, while a variety of communications units and multi-functional remote devices accelerate data communications and provide a real-time operations environment.

NOTE: The Univac Division of Sperry Rand Corporation reserves the right to change specifications without prior notice. Current information can be secured from your Univac representative.

The UNIVAC 1108 II is here for the progressive organization

The UNIVAC 1108 II Multi-Processor System provides the ultimate in combined multi-programming, multi-processing, time-sharing, batch processing, and real-time operations.

What does this mean to your organization? It means that all divisions, departments, remote facilities, and affiliates, have access to the system for batch, scientific, and real-time applications on a demand basis—concurrently. It means that customers and vendors can also be tied in to a superbly organized, tightly controlled, time-saving and economical network of operations.

The UNIVAC 1108 II is designed for lasting utility in progressive organizations that are continuing to move ahead. That's why it's called *the years-ahead management system for right-now use.*

